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CANADA MORTGAGE AND HOUSING CORP.

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R2000 NORTH/HOUSE DISPLAYS

Canada Mortgage and Housing Corporation
Société canadienne d'hypothèques et de logement

Canadian Housing Information Centre
Centre canadien de documentation sur l'habitation

FINAL SUMMARY REPORT

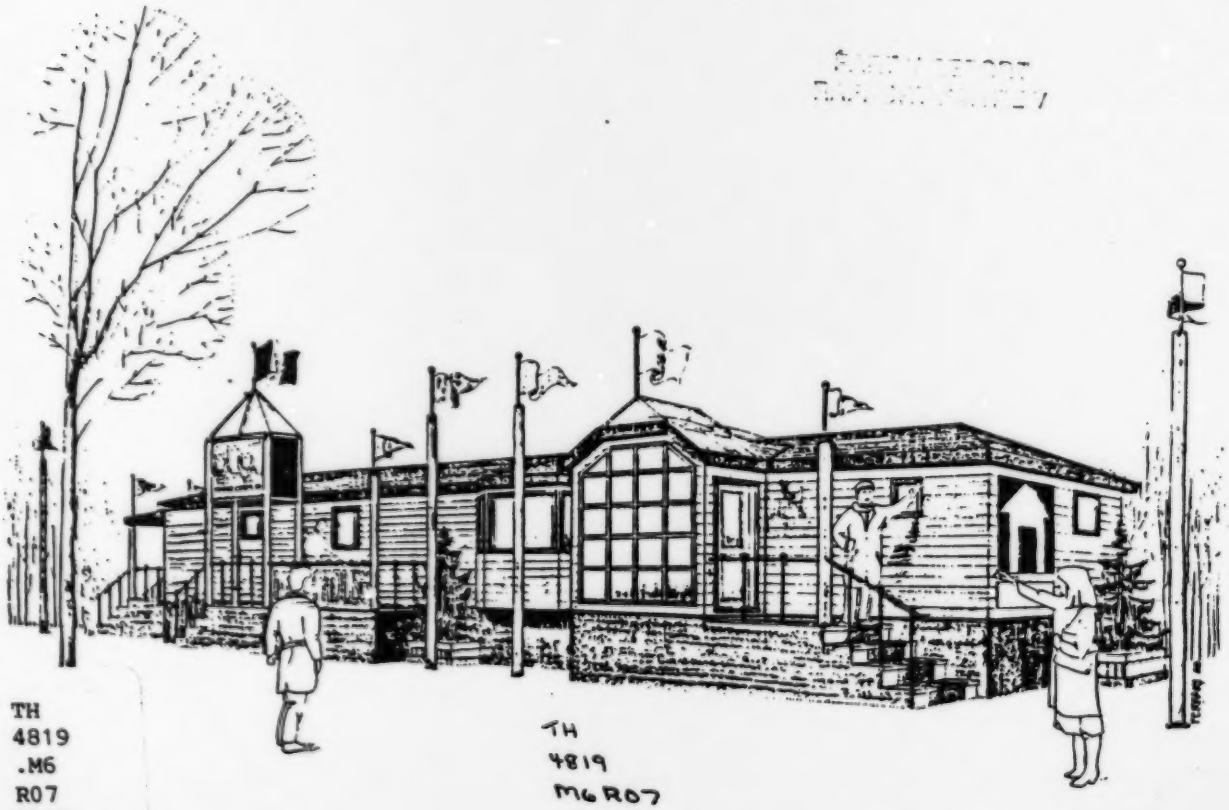
Prepared By

Manufactured Housing Association of Alberta and Saskatchewan

INTRODUCTION:

The Winter Cities Showcase 88 Exhibition in Edmonton offered the opportunity to display relevant products to a uniquely International audience of public officials and others having specific interest in cold climate living conditions.

With the foregoing in mind, the Manufactured Housing Association of Alberta and Saskatchewan saw an opportunity to exhibit a manufactured housing unit designed specifically for northern application. All important considerations were carefully evaluated and the R2000 North/House was manufactured and displayed in Winter Cities Showcase 88 from February 15 through 18th, 1988.



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From Edmonton the North/House was relocated to Yellowknife and set up on the ice of the Great Slave Lake for display in the caribou Winter Carnival from March 25 through 28, 1988.

A planned display in Whitehorse was cancelled, owing to adamant refusal by the British Columbia government to issue an overwide, transportation permit necessary to utilize its roadway system. Whitehorse cannot be accessed by road without crossing some part of British Columbia.

DESIGN GOALS:

- Utilizing factory production-line methods, manufacture a single section housing unit. Ideal factory working conditions and rigid quality control procedures will insure high quality and minimize costly follow-up warranty work in remote areas.

- Design the house to meet the standards of the National R2000 "Super Energy Efficient Home Programme."

- Insure the completed home can be economically delivered from factory to destination in one fully assembled section.

- Minimize the need for tradesmen or specialized labour at the destination by delivering the house at a stage of completion that requires only simple set-up and utility hook-ups prior to occupancy.

- Utilize a specialized wood block foundation system allowing for simple, inexpensive installation on any homesite including permafrost and/or other sites with marginal stability conditions. For urban and easily accessible rural areas, conventional concrete foundations and basements can be readily utilized.

- Finish the entire exterior of the home in zero or minimal maintenance materials, reducing the need for difficult to arrange and costly maintenance.

- Insure the home is readily and economically relocatable when resident circumstances or the local economy warrants. For single resource/industry communities, vast improvements in housing utility can be achieved and losses in housing value avoided.

THE DEMONSTRATIONS:

At the Winter Cities Showcase, more than 1000 visitors representing government agencies, planning commissions and other pertinent disciplines, toured the unit. Most of these visitors represented geographic areas where application of the North/House technology is totally appropriate and cost-effective.

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Caribou Carnival is the major winter gathering event in the N.W. Territories attracting 8,000 to 12,000 visitors from Yellowknife and area. The North/House was displayed in an area central to all carnival activities and attracted approximately 5000 visitors over the three day display period. The yellowknife market is typical of remote communities with strong economies in that local wages are very high and the cost of building materials border on the outrageous. The foregoing combined with harsh climatic conditions yields conventional house prices in the $150,000 range for a basic housing unit on a lot. By comparison, a 1200 S.F. mobile home of the North/House calibre on a privately-owned lot can be delivered to the consumer for approximately $110,000.00. The price difference, combined with the obvious quality built into the North/House, showed the residents of Yellowknife and area a very affordable and attractive alternative to the conventional housing unit.

A number of direct enquiries have since been received regarding design, cost and delivery details as they apply to rural, remote and northerly areas in general. A request from the Saskatchewan government is a good example. Prior to development of the North/House, the Saskatchewan government at every level has resisted our attempts to introduce the manufactured house for government application.

The North/House exhibit clearly had a beneficial effect on the overall perception of the mobile home that has been held by many people. Typically we found the architectural changes to the exterior created a strong visual statement that attracted many to have a closer look. After a thorough examination of the interior, including the construction methods and materials utilized, numerous visitors proclaimed their amazement at how well constructed and attractive the modern mobile home has become.

Our extensive display graphics and logical market applications as outlined in our brochure, went a long way toward answering the why and where questions relating to the North/House.

Of major consequence to our image was the R2000 designation which seemed to provide a disproportionate perception of quality and value with the largely northern and somewhat international audience. The R2000 association would appear to clearly enhance the image of the mobile home in the minds of many.

The Livable Winter Cities Association has asked to do a feature story on the North/House in their monthly newsletter that reaches an international audience of more than 10,000 individuals and companies having a direct interest in winter-city living. This will be an excellent opportunity to direct a comprehensive message to a large pertinent audience.

SUMMARY AND CONCLUSIONS:

The R2000 North/House effort represents the first time a mobile home has been manufactured to R2000 standards in western Canada. The final inspection has now been completed with adherence to R2000 standards established in all categories except the air tightness requirement. We suspect floor deck sealing problems to be the cause and will devise corrective measures for future application.

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As we review the requirements of the R2000 program and apply the suggested sequence of events to our production line operation, we find a need for adjustments to the program if there is to be volume application to the mobile home. The following issues are noted:

- The inspection sequence does not follow our production sequence which is essentially the reverse of conventional construction.

- The R2000 program requires membership in the New Home Certification Warranty Program. As we do not normally provide a basement or foundation with our units, we fall outside the requirements of the warranty program.

- The R2000 program requires the destination and siting orientation of each housing unit in order to run the HOT 2000 analysis and provide the thermal insulation requirements. In the mobile home industry the destination and siting are virtually never known at the time of manufacture.

- R2000 units are normally in the 2000 square foot range, plus a basement in the 1200 square foot range. The configuration is usually multi-level and somewhat square, yielding optimal floor to wall area ratios. The foregoing circumstances are highly favourable to the air tightness test as the volume of the house is high, the wall to floor area ratio is low, the basement walls are solid impermeable concrete and the main level floor deck (which has numerous penetrations for plumbing, etc.) is contained within the air test envelope.

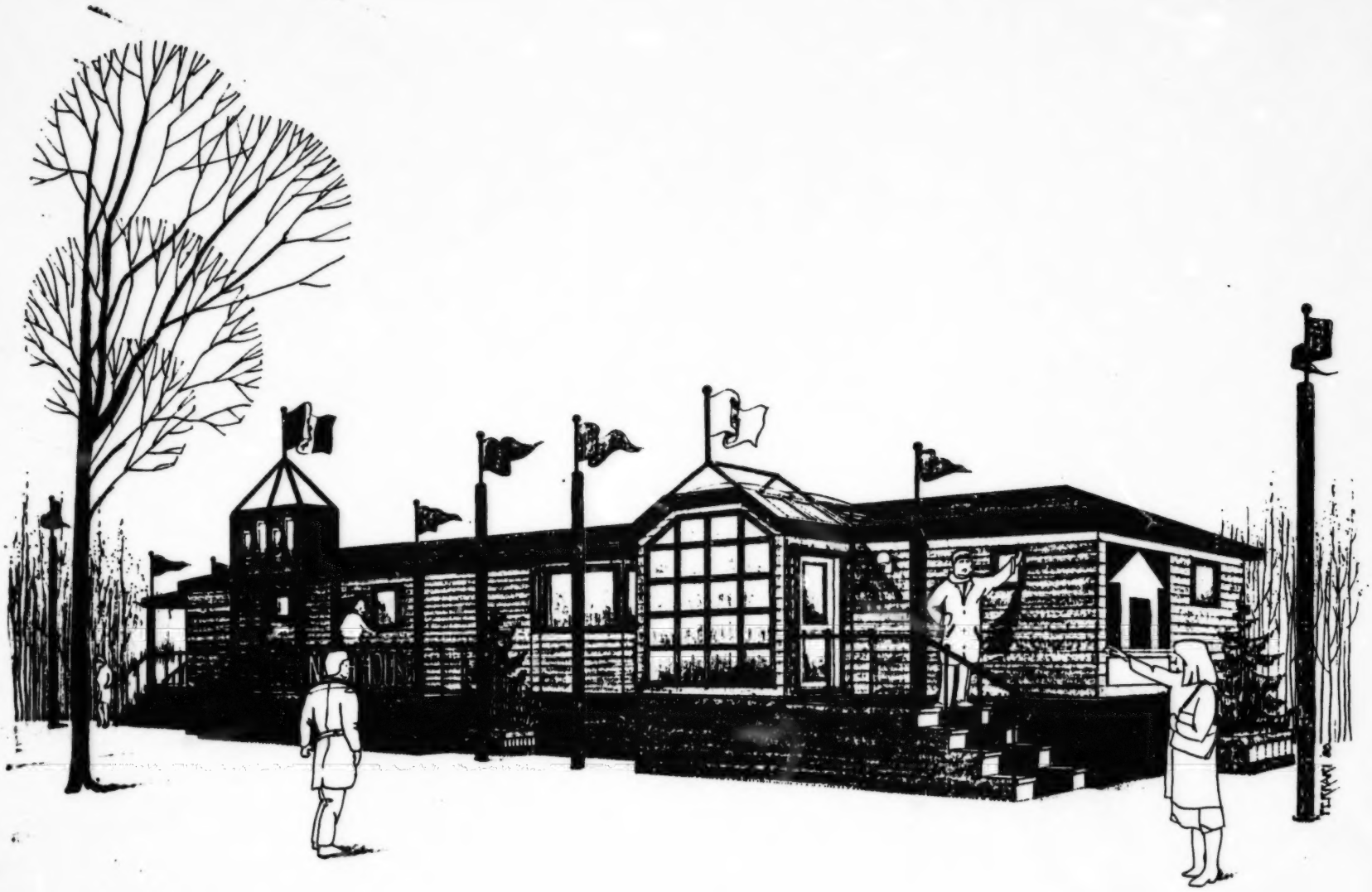
The R2000 people in Ottawa are aware of the problems we face and also cognizant of the market potential for the North/House and R2000 manufactured housing in general. As a result, they conducted a two day seminar in Ottawa on March 23rd and 24th with approximately fifteen Canadian manufacturers in attendance.

The seminar dealt extensively with technical problems and marketing advantages of R2000 housing. A very constructive exchange of ideas took place between the manufacturers and conventional builders present.

In summary, we feel our North/House exhibit in Winter Cities Showcase and the Caribou Carnival was a very worthwhile undertaking. The logic of factory produced high quality energy efficient housing for Northern application was verified many times over. The relocatability and adaptability to marginal site conditions at the destination, were referenced on many occasions as major advantages over our site-built competition. Best of all was reaction to the price. Without exception, A 1200 square foot, R2000 house of the North/House calibre available in Whitehorse or Yellowknife exclusive of land for approximately $60,000.00 was seen to be unparallelled value.

The North/House experiment has clearly established a mandate for the pursuit of northern markets by this industry. The Yukon and Northwest Territories along with Alaska have sizeable potential markets. Several U.S. border states and, of course, remote and northern areas in Canada have new or greater market potential in varying degrees.

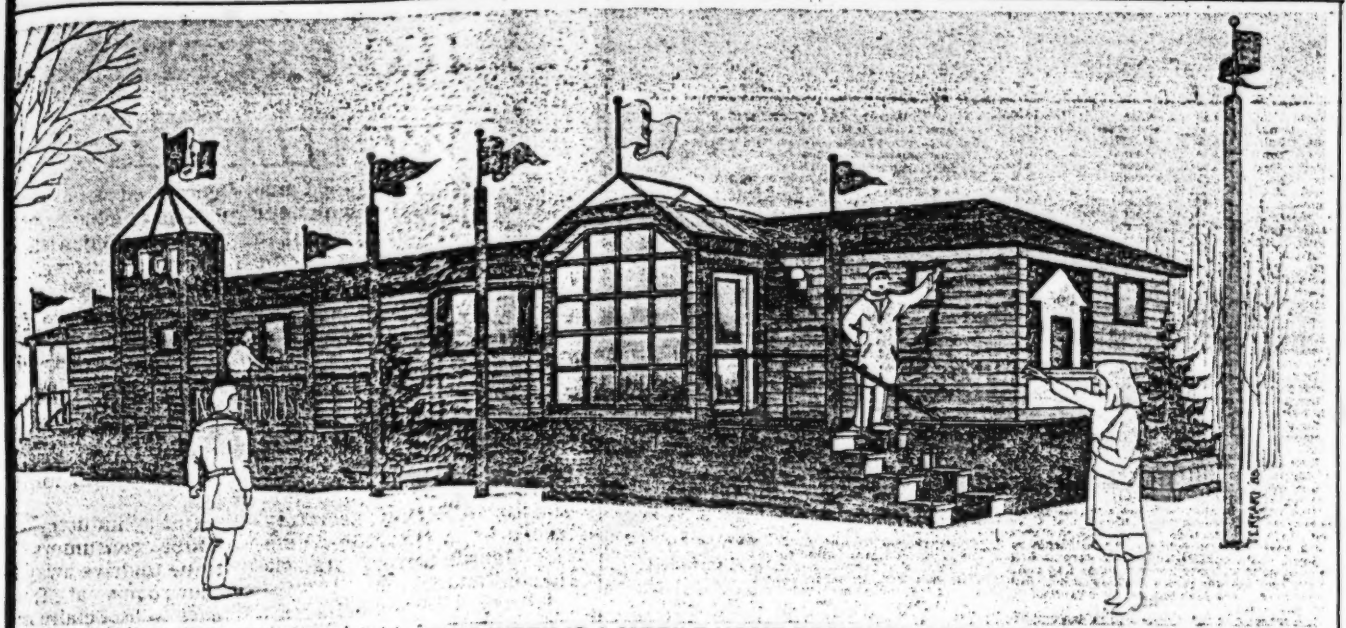
Over the next 90 days, the size of the market will be evaluated, the R2000 related issues debated and a decision made regarding development of North/House type units.



NORTH HOUSE

PENDERGAST GROUP

Red Deer Advocate Feb 16



HOUSE ON DISPLAY IN EDMONTON THIS WEEK IS A MOBILE HOME DESIGNED SPECIFICALLY FOR THE NORTH
e home manufacturers association hopes it will open new area of sales for companies
ARTIST'S RENDITION

obile home designed for North

By RAY DJUFF
of The Advocate

p for mobile home manufactur-
t to prove that manufactured
s a viable alternative for north-
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nufactured Housing Association
ta and Saskatchewan is display-
-2000 North House at the Winter
owcase in Edmonton this week to
est for the idea.

ree-day showcase is a meeting of
tatives from cities around the
hat experience severe winter
conditions.

model on display at the Winter
nference will show delegates that
uild mobile homes for extreme
living," said Les Spicer, presi-
he Red Deer-based association.

delegates take to it, Mr. Spicer
model could go into production.

The design model, constructed for the association by Triple E Homes Ltd. in Lethbridge, "is not that much different than what is being built today," he said.

About all that was needed to make the home meet the super-energy-efficient standards of Ottawa's R-2000 program was extra insulation and upgraded windows and doors, Mr. Spicer said.

"We're already building (mobile homes) very close to R-2000 specs now. It would take very little to get this home in production."

The North House has the added benefit of solar entrance to make the most of low northern light conditions. The entrance was created by the Red Deer company which Mr. Spicer heads, Annex Contracting Ltd.

While the cost of meeting R-2000 standards will push the price of the mobile home to between five and 10 per cent above ordinary, Mr. Spicer said the homeowner will see heating cost reductions of up to 75 per cent.

The advantages of the North House over conventional stick-built homes is that it can be readily and economically relocated when circumstances warrant, he said.

When the Winter Cities conference is over, the home is destined for Yellowknife where it will go on display and hopefully attract interest from northerners.

Alaska is a prime target since the cost of transporting an Alberta-made product is cheaper than it would be for something built in one of the lower 48 states, Mr. Spicer said.

Although the target is on northern climes, he said the super insulation used in the mobile home would also make it a candidate for summer cities — to keep the heat out.